JPRS 76800

12 November 1980

China Report

ECONOMIC AFFAIRS

No. 96

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

JPRS 76800

12 November 1980

CHINA REPORT

ECONOMIC AFFAIRS

No. 96

CONTENTS

ENERGY

Japanese Journal Reports on Development of China's Resources
(NITCHU KEIZAIHO, Mar 80) 1

Marsh Gas Production in Guangxi Slow To Develop
(Liu Xingze; RENMIN RIBAO, 8 Sep 80) 16

Industrial Front Achieves Marked Energy Savings
(ZHEJIANG RIBAO, 18 Sep 80) 19

Slurry Pipeline Transport of Coal Proposed
(Jin Luzhong; RENMIN RIBAO, 20 Sep 80) 21

Fuel Consumption Reduced in Hangzhou Industry
(ZHEJIANG RIBAO, 15 Sep 80) 24

Briefs

Shanghai's Tallest Tower 26

INDUSTRY

New Machine Fills Gap in Marine Cable Work
(Li Zuomin, Huang Jisheng; DAZHONG RIBAO, 27 Jul 80) 27

Machine-Building Industry in Zhejiang Readjusted
(ZHEJIANG RIBAO, 18 Jul 80) 29

Machine-Building Industry Reform Called For
(Qiushi; RENMIN RIBAO, 21 Aug 80) 31

FOREIGN TRADE

Briefs

Marine Diesel Licensing Contract 37

TRANSPORTATION

China Launches Its First Mail Ship; Will Run Between
Dalian, Yantai
(GUANGMING RIBAO, 22 Oct 80) 38

ENERGY

JAPANESE JOURNAL REPORTS ON DEVELOPMENT OF CHINA'S RESOURCES

Tokyo NITCHU KEIZAIHO in Japanese No 143 Mar 80 pp 54-69

[Text] II. Present State of Coal Supplies to Japan and Requests for Cooperative Development of Coal Fields

There are four coal fields supplying Japan: Kailuan, Zaotao, Datong and Huaibei. The first two supply raw coal and the latter two are suppliers of household [ippan] coal. Our cooperation is sought for development projects in Kailuan, Xishan (Gujiao), Yanzhou, Huainan coal fields as well as in Inner Mongolian Autonomous Region. The respective coal fields are described below:

1. Kailuan Coal Field

Kailian Coal Field is located in northeastern Hebei Province, 112 kilometers by rail from Qinhuangdao Harbor. Traditionally five coal mines--Tangshan, Majiagou, Zhaogezhuang, Linxi, Tangjiazhuang (Figure 3), formed the core of production. After the Liberation, exploratory drilling revealed that there was a submerged coal field underneath the Quarternary layer in the south field and the Lujiatuo and Fan'gezhuang mines were opened in a high-pitched drive for development. The Lijiatuo Mine has already begun production. In addition, new mines such as Qianjiaying and Songjiaying are currently in the process of being made operational.

Table 6 represents the stratigraphy of the said coal field. There are 17 seams. Operational seams are said to number five to six. As for the total thickness of these seams, Linxi Mine's seam is 13 meters.

The coal reserve (estimated reserve volume) in the above described operative mines is said to be 4.6 billion tons (1956 Kauluan Coal Mine Superintendent's Office). If the south field's coal reserve is included in the tabulation, the estimated reserve is thought to be about 10 billion tons.

Kailuan coal that goes to Japan at present is produced by the Linxi Mine. This mine has 6 operating seams: Seam No 5, 8, 9, 11 and 12. The estimated reserve volume is 220 million tons.

The supply to Japan currently coming from Linxi Mine is expected to come from the adjoining Lujiatuo Mine in the future. Lujiatuo Mine has submitted a coal sample to the Japanese iron manufacturing industry.

Figure 3. Location of the Kailuan Mine (sketch map)

Key:
1) To Tianjin
2) Tangshan
3) Jinggezhuang
4) Majiagou
5) Zhaogezhuang
6) To Qinghuangdao
7) Tangjiazhuang
8) Guzhi
9) Wali
10) Kaiping
11) Kaiping Syncline
12) Linxi
13) Lujiatuo
14) Songjiaying
15) Qinjiaying
16) Fan'gezhuang
17) Mining district
18) Coal measure

Table 6. Stratigraphy of the Kailuan Mine

Strata (Geological formation)			Coal Seam
Zone	Series	Group	
Permian Zone	Middle series	Tangjizhuang Group	third fourth
		Damiaozhuang Group	fifth sixth seventh eighth ninth tenth
Coal Age Zone	Upper series	Zhaogezhuang Group	eleventh twelfth
		Kaiping Group	fourteenth

The Lujiatuo Mine has eight proven coal seams and at present five beds are being worked. The estimated reserve volume is 550 million tons.

As indicated in Table 13, coal from this mine is a highly fluid, volatile bituminous coal. Ash content is 11.5 percent and rather high. However, the amount of high-grade coal in the raw coal is said to be 47 percent (sometimes, it is said to be 37 percent) and quite low. Even if we include secondary coal with high ash content--expected to be obtainable in the process of coal selection, the percentage [of high-grade coal] is thought to be 70-75 percent.

One of the projects for which cooperation between Japan and China is sought is the Qianjiaying Mine's development. The said mine is located still further south of Lujiatuo; and annual raw coal production of 4 million tons is expected here. The quality of coal is thought to be similar to that produced in Lujiatuo.

In 1975, Kailuan Coal Field produced 25.2 million tons. In July 1976 it was severely damaged by the Great Tangshan earthquake; and the production volume fell to 13 million tons in 1977. However, it recovered to 21.5 million tons in 1978. In the future, if Qianjiaying and Songjiazhuang join the production force, the Kailuan Coal Field's total output will become one of the largest in China.

2. Zaotao and Guanqiao Mines

Another name for Chinese coal is Zaozhuang coal. Traditionally, Zaozhuang coal was mined at Zaotao Coal Field's Zaozhuang Mine. But due to the ineffectiveness of the coal dressing machine, it was changed to 8.1 Mine from the adjoining Guanqiao Coal Field. Both fields are at the southern edge of the Shandong Mountains, 250 railroad kilometers from Lianyun Harbor.

Zaotao Coal Field has an east-west spread of 26 kilometers and north-south range of 4-14 kilometers. Guangiao Coal Field has a north-south spread of 10 kilometers and east-west range of 2.5 kilometers. Permian Period Shanxi layer is the major coal measure for both coal fields. There are 13 seams, 6 of which are in production. The chief seams are the No 2 Seam (9 meters) and No 3 Seam (1.6 meters).

At the Zaozhuang Coal Mine, the No 2 Seam and at the 8.1 Mine, the No 3 Seam are being worked. The estimated reserve for the Zaozhuang Mine is 110 million tons. 8.1 Coal Mine was a small mining operation in the past but exploratory drilling confirmed the existence of additional 50 million tons reserve coal, and thus, full-scale development has been launched.

With respect to the quality of coal, the analytical values in Table 13 indicate that it has low ash content--8.2 percent. Gisler [transliteration] rheometer reading is 6,000 DDPM on the average. It is a highly fluid, semi-bituminous coal.

Mining method is two-thirds hydraulic mining and the remaining one-third is slicing. Refined coal output is 1 million tons per year. Judging from the existing coal seam structure, spectacular enlargement of mining operations is believed to be difficult.

3. Datong Coal Field

It is located in northern Shanxi Province at Datong City. The distance to Qinhuangdao Harbor by rail is approximately 780 kilometers. The coal field is approximately 110 kilometers in its northeast-southwest stretch and 17 kilometers in its southeast-northwest reach.

The coal measures which comprise the said coal field consist of Jurassic Period Datong Series (upper coal measure) and Permian Period Shanxi and Taiyuan Series (lower coal measure). As shown in Figure 5, the upper coal measure is located in the northern part of the coal field and the lower coal measure is distributed in the southern portion. There are 7 working seams in the upper coal measure (Table 7) and the combined width of seams is 14 meters. There are three seams in the lower coal measure.

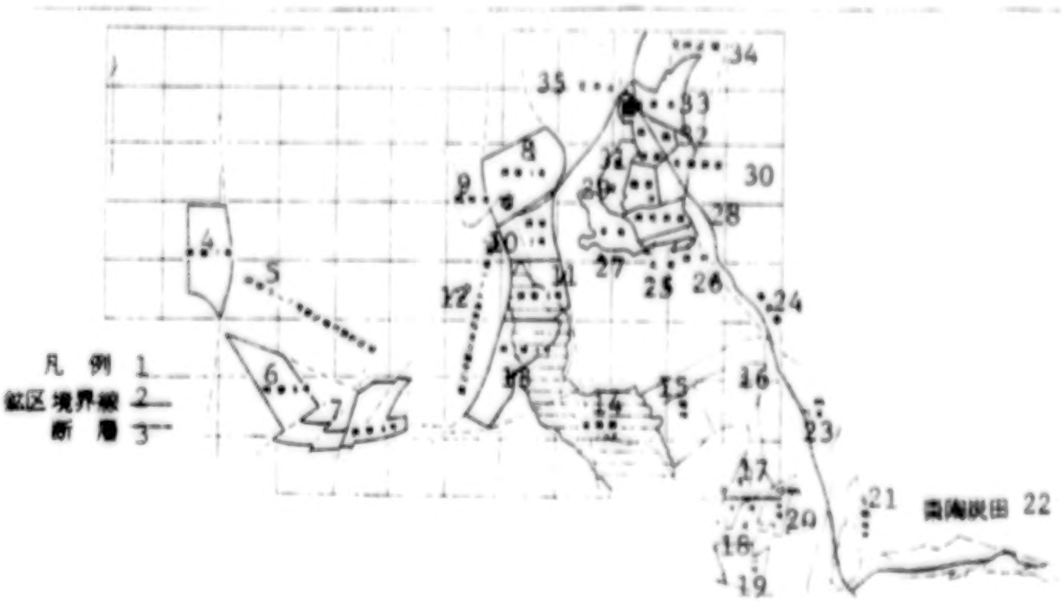


Figure 4. Regional map of Yanzhou, Guanqiao and Zaotao coal fields

Key:

1. Explanatory notes
2. Mining district borders
3. Fault
4. Jining No 7
5. Jining Nos 5-7 mining districts, joint planning districts
6. Jining No 5
7. Jining No 6
8. Jining No 1
9. Jining City
10. Jining No 2
11. Jining No 3
12. Jining Nos 1-4 mining districts, joint planning districts
13. Jining No 4
14. Nanyang Lake
15. [illegible]
16. [illegible]
17. [?]
18. [?]
19. [?]
20. [?]
21. Guangqiao Coal Field
22. Zaotao Coal Field
23. [illegible]
24. [?]
25. Beisu
26. Tangcun
27. Xinji
28. Nanchun
29. Baojiadian
30. (?) Coal Mine
31. Tianzhuang
32. Xinglong
33. Qufu
34. Yanzhou District
35. Yanzhou City

Table 7. Stratigraphy of the Datong Coal Field

Geologic Time			Series	Seams Worked
Ceno- zoic	Quarternary Age		Helocene	Major Producing Seams A. 1.2m - 1.8m B. 1.6m - 2.7m C. 1.8m - 1.6m D. 0.8m - 1.8m E. 2.8m - 7.0m F. 1.2m G. 1.2m
	Tertiary Age		Pliocene	
Mesozoic	Cretaceous Age			
	Jurassic Age	Middle	Yungang	
		Lower	Datong	
Paleozoic	Triassic - Permian Age		Huairen	
	Permian Age	Lower	Shanxi	
	Coal Age	Upper	Taiyuan	No 2 Layer (20m layer) Lower first layer 5m layer
		Middle	Benxi	
	Ordovician Age			
	Cambrian Age			
	Archeozoic Era		Archeozoic World	

The coal reserve in this field is said to be 37.1 billion tons for both upper and lower coal measures. It is a tremendous reserve figure, but nearly 60 percent of this is in the lower coal measure. Table 13 represents the quality of Datong brand coal supplied to Japan.

The coal seams worked thus far have almost all been in the upper coal measure. Raw coal's ash content has generally been low. Though sieving is the only selection method used, raw coal's charcoal ash content is only 10 percent; it is a high quality household coal with a high exothermal value.

Fifteen coal mines are managed by the Datong Mining Bureau. Of this number, 13 are operating mines and 2 are under development. The operating mines have an output range of 700,000 tons per year to 2.5 million tons per year. The model mines are Yungang (2.5 million tons per year) and Meiyukou (2.1 million tons per year). Yungang Coal Mine was opened in 1960 and a portion of its coal output is exported to Japan. Aside from the Mining Bureau managed mines, there are many medium and small size mines managed by the province and the city of Datong. The coals produced by the 13 mines are called Datong coal, and the total production volume is 24 million tons per year, and they are shipped out of the country (to Japan, England, Netherlands). The coals produced by provincial or city operated mines are used within the province or the city, and production is lagging behind increased demand.

It is predicted that full-scale research/development of the southern portion of the coal field in the future will yield bituminous coal from the lower measures.

Judging from its size, the field currently being worked is capable of considerable production increase.

4. Huaibei Coal Field

It is located in northern Anhui Province. The mining district is 1,000 km^2. The measures which comprise the coal field belong to the Permian Coal Age, and there are 18 seams in all. Of this number there are two operating seams (average 4m, 1.1m). As shown in Table 13, this area's coal has a high ash content.

Eleven coal mines belong to the Huaibei Mining Bureau, and the total coal output for 1977 was 11.2 million tons and 12.5 million tons for 1978. At present four new mines are being developed.

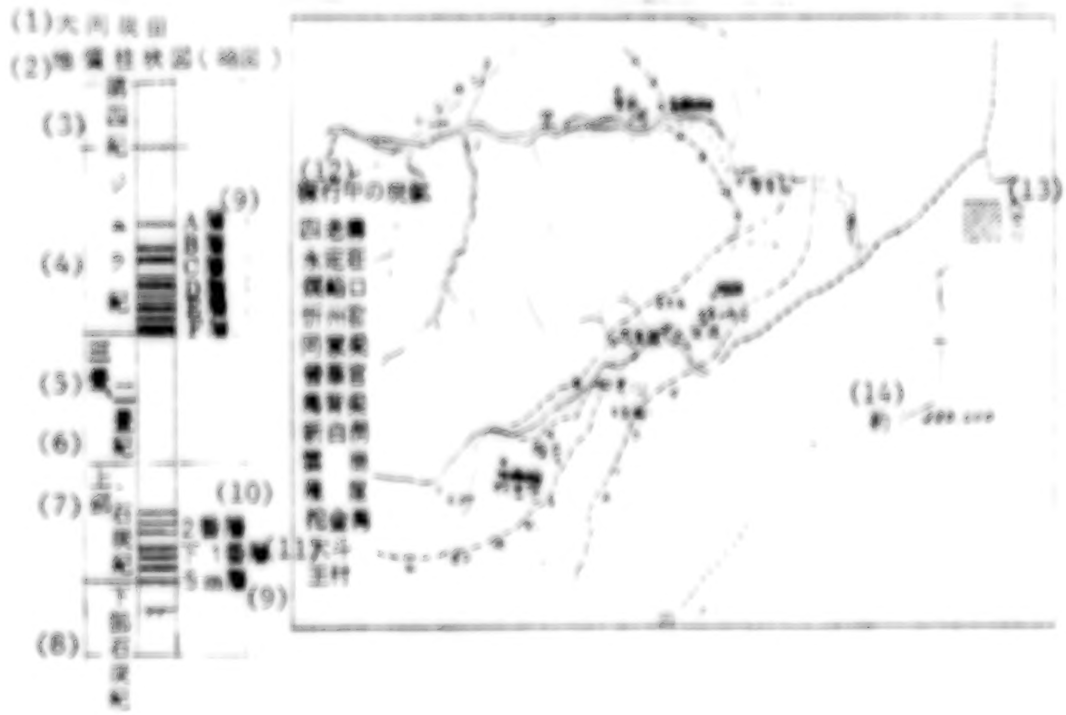


Figure 5. Locations of Mines in the Datong Coal Field

Key:
1. Datong Coal Field
2. Geologic column
3. Quarternary age
4. Jurassic age
5. Triassic age
6. Permian age
7. Early coal age
8. Later coal age
9. Layer
10. Second layer
11. Lower first layer
12. Mines being worked
    - Silaogou
    - Yongoingzhuang
    - Meiyukou
    - Yizhouyao
    - Tongjialiang
    - Jinhuagong
    - Mabeiliang
    - Xinbaidong
    - Yungang
    - Yanyai
    - Tuojinwan
    - Dadou
    - Wangcun
13. Datong City
14. About

Table 8. Development Plan for the Gujiao Region

Name of Mine	Mining Area km^2	Reserve Volume 1 mil. t	Output 10,000t per year	Type of Coal	Development Status	Development Time Frame	Cooperative Format
Xiqu	60	7.8	300	rich, char	gallery slant mining excavation in progress	1978-1984	Export Bank financing
Zhenchengdi	25	3.8	150	char, rich	planning stage (slant mining)	1980-1984	"
Malan	80	11.1	400	rich, char, lean, poor	planning stage (slant mining)	1981-1986	"
Tunlan	72	9.5	400	lean, poor	planning stage (mining shaft)	1982-1986	guaranteed trade
Dongqu	73	8.1	400	lean, poor	gallery and slant mining planning stage		self-help (autonomous project)
Totals	310	40.3	1,650				

This coal field is located in Shanxi Province 50 kilometers west of Taiyuan City. Gujiao to Qinhuangdao Harbor is a distance of 910 kilometers by rail. As of May 1979, the railroad from Taiyuan to Gujiao was to be completed by the end of 1979. As shown in Table 8, there is a development plan which divides the Gujiao Region into five mining districts.

This coal field's coal measures belong to the Permian Coal Age (Shanxi and Taiyuan seams). The seams are exposed on the northeast to northwest side and generally, they run east-west, and there is a 5° inclination southward.

There are 19 seams at this coal field, and 13 are workable seams. The development of coal seams varies somewhat from one mine to another. For example, as shown in Table 9, six to seven seams are being worked at the Xiqu Mine. No 2 Seam is the major seam of the Permian Age and No 8 Seam is the major seam of the Coal Age.

The analytical values of both seams are as follows.

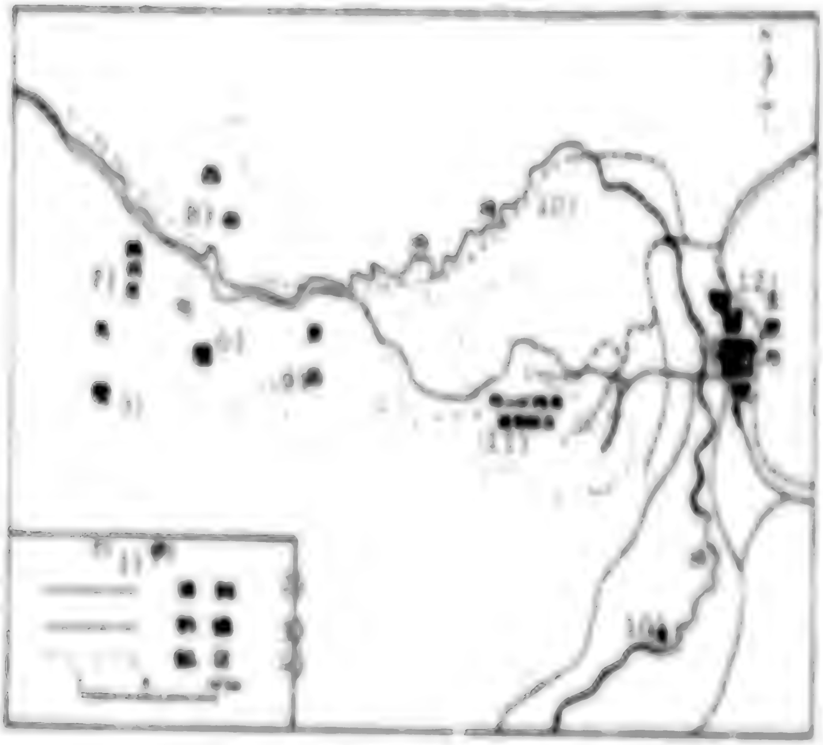


Figure 6. Xishan Coal Field (Gujiao Region)

Key:

1. Legend
2. Road
3. Railroad
4. Mining District
5. Malan
6. Tunlan
7. Zhenchengdi
8. Xiqu
9. Dongqu
10. Fenhe River
11. Xishan Mining Bureau operated district
12. Taiyuan City

Table 5. Xiqu Coal Mine Operating Seams

Geologic Period	Coal Measure	Name of Coal Seam	Average Thickness of Seam	Distance Between Seams
Permian Age	Xishan	02	0.67m	36
		1	0.75	3
		2*	3.36	10
		4	2.36	42
Coal Age	Taiyuan	7	0.80	21
		8*	4.13	3
		9	1.90	

*Note: This is a major coal seam.

Table 10. Analysis of Seams 2 and 8 in the Xiqu Mine (figures in percent)

	No 2 Seam	No 8 Seam
Ash content	8.3	6.9
Volatile content*	20.9	18.1
Total sulfur content	0.51	1.40
Phosphorus	0.0013	0.0029
Y Count	16.5	12.0

*Note: Volatile content is d.a.f. base.

Throughout the coal field, the volatile content of seams is higher in the western portion, and it tends to gradually decrease toward the east. Moreover, in comparison to the Coal Age coal, Permian Age coal is high in ash content. As will be revealed later, coal from this coal field, despite its low volatile nature, is a highly fluid bituminous coal. When this mining district is developed, it is thought to become an important raw coal source area for Japan.

6. Yanzhou Coal Field

Yanzhou Coal Field is the greatest coal producing district in Shandong Province. The three Japan-China cooperative projects (Baodian, Jiangzhuang--Export Bank financing; Jining, No 2--joint concern) are slated for this region. The area is divided into Yanzhou Mining District which spreads north and west and Da-zhuang, Tengxian Mining District which occupy the southeastern portion. As shown in Figure 4, Yanzhou Mining District is separated into Jining Sector and Yanzhou Sector by a single fault, and it is separated from Tengxian District by sedimentary deposits. This coal field is located 140 kilometers south of Jinan City, midway between Jinan and Xuzhou. It is 230 kilometers by rail to Lianyun Harbor. There is a plan to construct a new port--Lanshantou--80 to 100 kilometers due north of Lianyun Harbor and the railway distance then would be cut to 200 kilometers.

Table 11. Coal Seams in the Yanzhou Area

Stratigraphy	Coal Seam	Seal Depth(m)	Average	Distance Between Seams
Shanxi Group	2 3	1.4 - 7.0		0.05 - 23.89
	3	3.29- 6.44	5.21	6.89
	3	2.66- 3.98	3.28	37.00
Taiyuan Group	7		0.60	84.00
	13		0.68	40.00
	16		0.97	12.00
	17		1.11	3.00
	18		0.65	

Each area is slated for a project: Jining District—Jining No. 2; Yanzhou District—Nantun Coal Mine; and Tengxian District—Tangzhuang Coal Mine.

The coal measures in this field belongs to the Permian Age (Shanxi Group) and the Coal Age (Taiyuan Group); and there are 17-22 seams altogether. Of this number, 7 seams—Nos 2, 3 belonging to the Shanxi Group and Nos 6, 10, 15, 16, 17 belonging to the Taiyuan Group—are workable seams. Seams wider than 3 meters are Nos 3 and 2.

Tables 11 and 12 describe mine developments in Jining and Yanzhou districts and the quality of coals produced in each area.

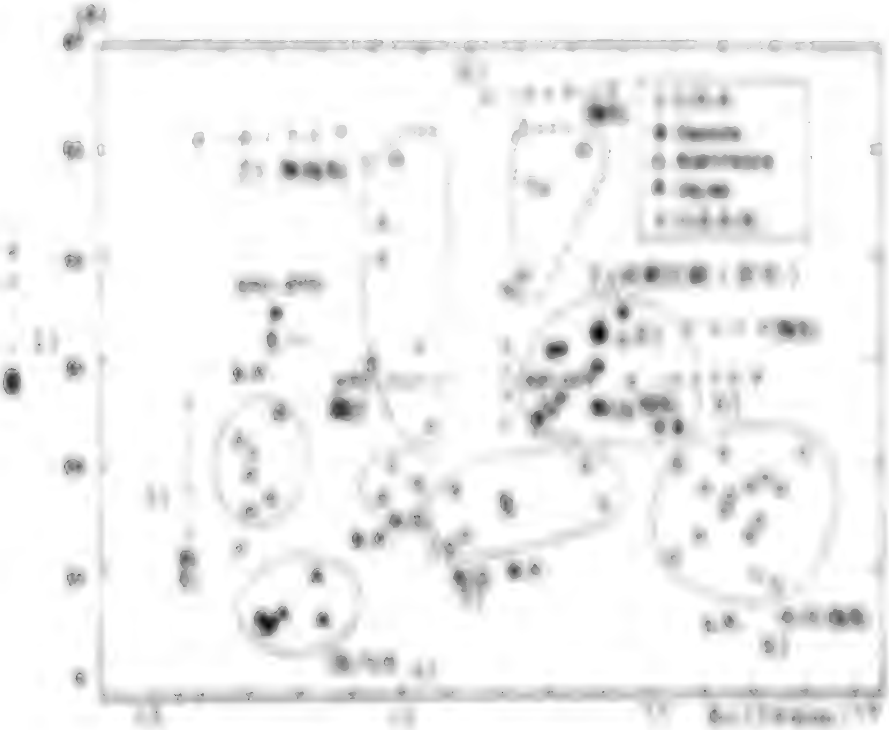
Table 12. Quality of Yanzhou, Jining Coal

Quality of Thick Seams (Nos 2, 3)	Yanzhou Area	Jining Area
Ash content	13 - 16	18 - 22
Volatile content	37 - 38	38
Calorific (exothermic) value	6,800 - 7,200	7,000 - 8,000
Sulfur	0.47 - 0.66	0.50 - 0.70
Y Index	9 - 10	13
Quality of Thin Seams (represented by No. 16)		
Ash content	19 - 31	By and large identical with the left column.
Volatile content	43 - 44	
Calorific (exothermic) value	6,100 - 7,600	
Sulfur	3.4 - 3.6	
Y Index	17 - 20	

Throughout Yanzhou and Jining districts, the No 3 seam is fairly wide and stable. It is a low sulfur, low ash, high calorific (exothermic) value, somewhat bituminous coal and is suitable as household coal or coke products coal (plastic coal [gas-fat coal]). The lower seams—Nos 15, 16 and 17—are thin but are stable and consist of highly volatile, lesser bituminous coal said to be suitable for cokes and as raw material for chemical products.

There are 11 coal mines in the Yanzhou Coal Field—in Yanzhou, Zouxian, Jining districts—that are slated for development. The reserve is estimated at 11.4 billion tons, and production rate based on this figure is 50 million tons per year. Development of new mines is planned in stages, but the prediction is that Yanzhou Coal Field will become a leading coal field in production of household coal in China. The problem is that the coal seams in the proposed development mines are buried deep, and a considerable initial capital is required for its development and that the process of development will require time.

7. Jungar Coal Field



(Data compiled by [illegible] of Japan Coal Mining Co)

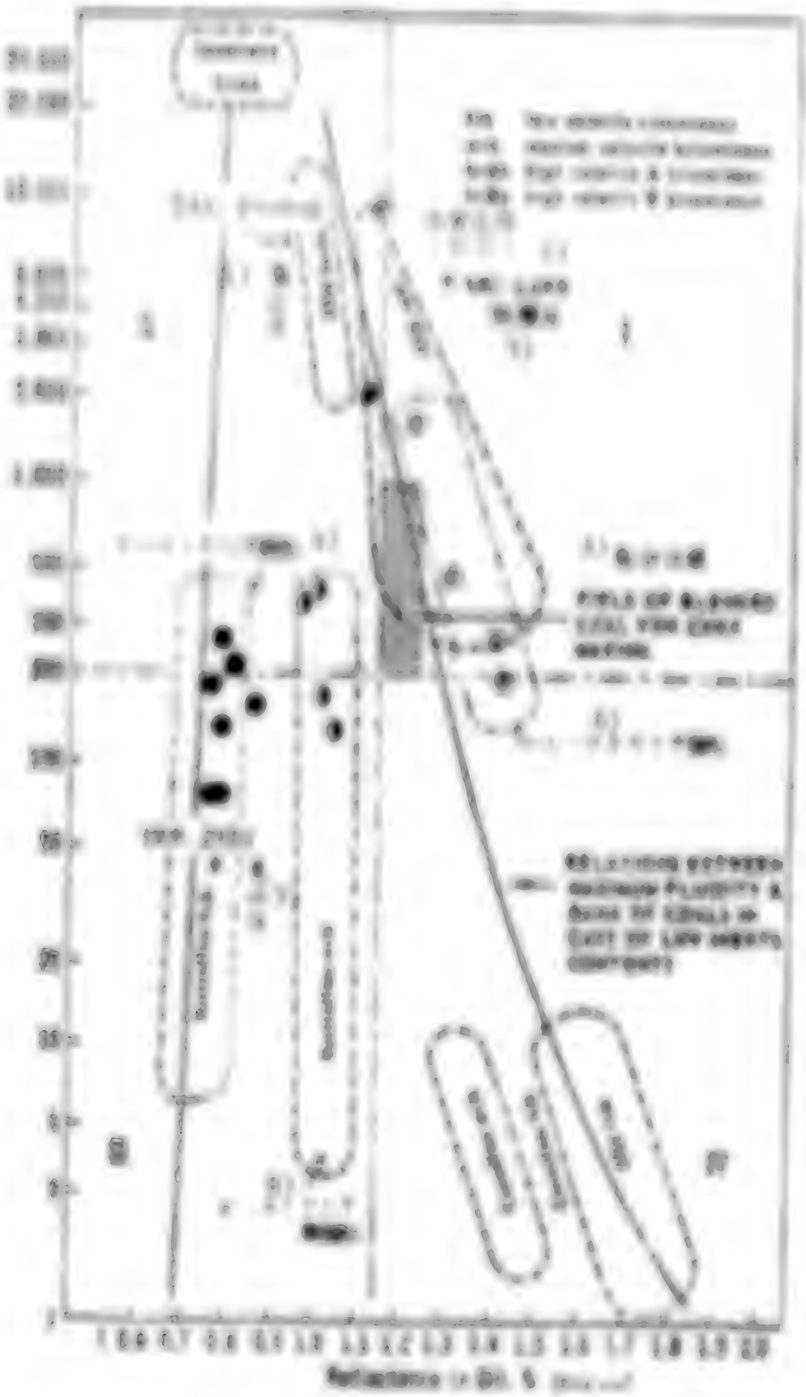
Figure 7. Ash content of coal from various countries

Key:

1. [illegible]
2. Australian medium volatile bituminous
3. Australian low volatile bituminous
4. [illegible] coal
5. United States
6. Australian high volatile bituminous
7. [illegible] coal (China)
8. Canadian high volatile bituminous
9. United States high volatile bituminous

This coal field is located 150 kilometers due east of Baotou in Nei Monggol Zizhiqu's (Inner Mongolian Autonomous Region) in the Ordos Highlands with a geographical spread of 700 km x 30 km. There are 5 operating coal seams and the total width of coal seams is said to be 15 - 28 meters. The reserve volume is said to be 26 billion tons.

The coal of this area has ash content of 20 percent, volatile content of 38 percent, sulfur content of ½ percent and exothermal value is 5,000 cal. It is a low grade bituminous coal. The developing method that is being planned is strip mining, and the stripping ratio in the initial development area is said to be 3:1. During the first stage of development, 15 million tons per year production is planned. The ultimate goal is to mine 30 million tons per year. The coals are to be used for generating electricity at a 1,200 mw capacity power generating station (planned).



([illegible] supplied by [illegible])

Figure 8. [illegible] diagram

Key:

1. [illegible] coal
2. [illegible] coal ([illegible])
3. [illegible] coal
4. Australian low volatile bituminous
5. [illegible]
6. Australian high volatile bituminous
7. [illegible] coal
8. Australian medium volatile bituminous

Table 13. Quality of Raw Coal Supplied to Japan

	(1) [illegible]								(2) [illegible]					(3) [illegible]			(4) [illegible]	(5) [illegible]
	I.M	A	V	[illegible]	F.C	T.S	[illegible]	Cal	C	H	O	N	S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	%	%	%	%	%	%		kcal/kg	%	%	%	%	%	(10) %	[illegible]	(11)	(12)	(13) %
(6) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
(7) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
(8) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key:

(1) Industrial analysis
(2) Elemental analysis
(3) Structural analysis
(4) Gieseler [standardization] plastometer
(5) Dilatometer
(6) Kailuan coal
(7) [illegible] coal
(8) [illegible] coal ([illegible])
(9) Total [illegible]
(10) Total [illegible]
(11) Reflectance ratio
(12) Highest fluidity
(13) Total expansion

Table 14. Quality of Household Coal Supplied to Japan [illegible]

	(1) [illegible]							(2) [illegible]					(3) [illegible]	HGI
	I.M	A	V	W[illegible]	F.C	T.S	Cal	C	H	O	N	S		
	%	%	%	%	%	%	kcal/kg	%	%	%	%	%	°C	
(4) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
(5) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5,500 ~6,000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
(6) [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key:

(1) Industrial analysis
(2) Elemental analysis
(3) Melting point of ash
(4) Datong coal
(5) Huaibei coal
(6) Yangquan coal

At present, Nei Monggol [illegible]'s production volume is 13.5 million tons per year. But hereafter, annual increase of 1 million tons is planned, and by 1991, the existing coal mines are slated to produce 20 million tons per year. When planned output volume for the Jungar Coal Mine is added to this figure, it would mean an annual production of 50 million tons. In terms of supplying Japan, since there is a transportation problem in getting the coal from this inland location to a seaport, it would be difficult to consider it as a serious possibility.

Aside from the abovementioned coal fields, there is Panji No. 3 Mine Project in the Huainan Coal Field. At this site, development via main shaft has already begun. The coal quality here is household coal and the development goal is 3 million tons per year.

III. Grade of Coal Supplied to Japan

The raw coal currently being imported is Kailuan coal and Zaozhuang coal. Japan-China cooperative projects with focus on raw coal are Qianjiaying Mine in Kailuan Coal Field and four mines in the Huaibei District. Analytical chart of Wujiazhuang coal which is a representative product of the Huaibei District and Kailuan coal and Zaozhuang coal is shown in Table 13. A consideration of the properties of raw coal available to Japan based on the result of this analysis tells us that Zaozhuang coal is high in volatile content and Wujiazhuang and Kailuan coals have lesser amounts in that order. Ash content is higher in Kailuan coal than in Zaozhuang and Wujiazhuang coal. In relation to coker properties (for example, vitrite average reflectance, Gieler (transliteration) fluidity and inert content (Figures 7,8), all have excellent properties for high fluidity blended coal. According to Mr [illegible] of Nippon Steel Tubing Company, Kailuan coal is equivalent to Canadian high volatile content bituminous coal; and Zaozhuang and varieties are equivalent to medium volatile bituminous coal.

With respect to household coal, Table 14 represents the analytical values of Huaibei coal and Datong and Yanzhou coal. Observations regarding the properties of household coal from the results of analysis are as follows:

Yanzhou coal has a low ash content and high exothermal volume;
Huaibei coal has the highest ash content and is low in exothermal volume;
Datong coal is in between the two and closer to Yanzhou coal in characteristics.

All of them have small sulfur and nitrogen content and the melting point of ash is high. It has excellent properties for a general use.

CONCLUSION

In the foregoing section, we have outlined China's coal reserve volume and production volume with special emphasis on coal fields currently supplying Japan and 10 out of 17 projects that are being considered for possible Japan-China cooperative venture. These cooperative venture projects are restricted to mainland China's northern and central locations, but they possess good geologic

and mining conditions. Jungar and Yiminhe are the extreme interior region and Datong is approximately 800 kilometers away from the sea coast. Others are within 200 km range from the sea. When Japan becomes reliant on supply of Chinese raw coal for its iron manufacture, or when China becomes an important link in Japan's energy plan, these mines will become important suppliers, and our cooperation in their development will bear a harvest of fruit.

11460
CSO: 8129/1696

ENERGY

MARSH GAS PRODUCTION IN GUANGXI SLOW TO DEVELOP

Beijing RENMIN RIBAO in Chinese 8 Sep 80 p 5

[Article by Liu Xingze [0491 2502 3419]: "Reasons for Slow Development of Marsh Gas Production in Guangxi"]

[Text] All-out development of marsh gas is an important element of modernization of agriculture, construction of rural energy sources, fertilizer and public health, as well as of protection of the environment. The Guangxi Zhuang Autonomous Region is located in a semitropical zone, with extremely rich marsh gas resources and superior conditions for their development. The state dispenses a large quantity of funds and materials every year for the purpose of supporting mass-operated marsh gas production.

In the past few years, however, the development of marsh gas in Guangxi has been rather slow. According to statistical reports, since the beginning of the extended scope of marsh gas in 1971, there have been only somewhat over 40,000 marsh gas tanks constructed and in operation in the entire province. Among all provinces, cities and autonomous regions, Guangxi ranks 15th.

The related leadership organizations in the province have not given the matter sufficient attention. They believe that many problems exist regarding marsh gas technology; therefore, they are not willing to tackle it. The management organization has also had very frequent turnovers. Before 1974, marsh gas work for the entire region was under the unified supervision of the Bureau of Science and Technology. The autonomous region resolved in 1975 to assign marsh gas work to the Department of Planning. In 1976, soon after the Department of Planning took over, it was again resolved that the work should be given to the Office of Agriculture to manage. As soon as the Office of Agriculture accepted the job, it was immediately given to the Bureau of Agriculture. In 1979, it was again resolved that the Soil and Fertilizer Station of the Bureau of Agriculture should manage marsh gas. The constant changing of management organization, from a supervising organization to a subordinate organization, etc., caused a constant changeover of personnel, with the result that there was no way to develop any sort of management. In some localities there was supposed to be a management unit; in reality, no one managed at all. If the masses wanted to operate marsh gas, there was no way to find the organization or the persons in charge of it. Last year, based upon a related directive of the Central Committee, the autonomous region planned to expand the marsh gas special staff of the Soil and Fertilizer Station of the region's Bureau of Agriculture from 8 to 10 members. Now, in

reality, only one person is doing marsh gas work. It was resolved that each locality, city and county may be assigend one or two persons who specialize in marsh gas, but to this day some places do not have a single marsh gas specialist. For example, Luzhai County was picked to be the key county for marsh gas development in Liuzhou District. In 1980, the state dispensed 120,000 yuan as a tank construction fund (including the construction of latrines, pig and oxen shelters and manure sheds, etc.) and 1,500 tons of cement for the construction of 1,500 marsh gas tanks. Due to the fact that there is no one to manage this activity, not a single marsh gas tank has been built to date in the entire county.

Under the situation of frequent changeovers of management organization, the work of training technicians just cannot be carried out. Consequently, the design of tanks in many places is not reasonable and the materials are not assembled according to a given ratio. A large number of "sick tanks" were built but could not be used. In some palces, due to the fact that economic policies are not implemented, the commune members do not feel positive about operating marsh gas. For example, the 4th Production Team of Liangtong Brigade, Chengxiang Commune, Wuming County, had 15 members who had successfully constructed marsh gas tanks, but the production brigade would not give them the raw materials. The members then thought they would supply their own materials, but the production brigade would not give them credit for the fertilizer used.

Many comrades and technicians who are engaged in marsh gas work in Guangxi expressed opinions concerning the frequently changing conditions of Guangxi marsh gas work:

1. The leadership authorities of the autonomous region should strengthen their guidance in marsh gas work and list this item in their administrative agenda. Specifically, they should first resolve the problem of management organization and personnel. Organizations specializing in marsh gas work should be set up in all localities, counties and cities, and one party political cadre should be assigned at every level to be in charge of this work. The departments of industry, transportation, public health, finance and trade should be positively organized to support and assist, and the various ranks of management organizations should select appropriate staff members.

2. At present, the greatest obstacle to marsh gas development in these rural villages is the technique of constructing the tanks. Marsh gas specialists are very much in short supply. Wherever conditions permit, a team of marsh gas construction specialists should be established, and the members of the team should all receive a definite period of training. In the proces of constructing the tanks, the masses should dig the hole and prepare the materials, with the team of specialists performing the construction work. When the tank is built, it must be inspected and accepted if it meets the standard, and the production brigade or the commune member should pay the appropriate rewards. If it does not meet quality standards, the structure should be rebuilt or the wages and rewards should be deducted.

3. It is hoped that the autonomous region will formulate a system of marsh gas management methods and a series of related policies as soon as possible so that the current condition, whereby there are no rules to be followed, will be changed.

4. Marsh gas scientific research work in Guangxi is poor. To this day there is no unit or person in the entire region specializing in marsh gas research. It is hoped that a group of persons who have had some experience in marsh gas work can be organized to carry out research in the autonomous region to resolve specific problems in the development of marsh gas.

6168
CSO: 4006

ENERGY

INDUSTRIAL FRONT ACHIEVES MARKED ENERGY SAVINGS

Hangzhou ZHEJIANG RIBAO in Chinese 18 Sep 80 p 2

[Text] Energy resource consumption on the provincial industrial front has achieved excellent results. In the first 7 months of the year, industrial production provincewide was up 31.7 percent over the same period last year while coal consumption had increased by only 21.7 percent; coal consumption per 100 million yuan worth of output was down 7.7 percent from last year's figure. According to statistics for the first half of this year for 1,628 inspected units provincewide, decreased consumption saved 190,000 tons of coal, in addition to which the fuel supply departments of 54 municipalities and counties re recovered and used 470,000 tons of coal slag (equivalent to a coal saving of 94,000 tons), amounting to a total saving of 284,000 tons of raw coal).

Strengthening fuel quota management, implementing fixed-quantity supply, and implementing consumption norms all the way down to shift and team level are effective measures which have achieved marked success in the province's energy resource conservation work. Starting this year, the enterprises in all localities have stimulated the masses to locate leaks, work out measures, and eliminate "movable assets," have set up a management system and put it into good condition, and have managed to institute recording of quantities, accounting and inspection in the use of fuels, weighing at the time of burning, shift-by-shift recordkeeping, and assignment of individual responsibility. The province's small-scale nitrogen fertilizer industry's two kinds of coal consumption have been further lowered: in January-July of this year consumption per ton of ammonia was decreased by 154 kg, saving 52,000 tons of raw coal. The Juzhou Chemical Engineering Plant leadership took the matter seriously, and by energetically implementing consumption according to quota, equipment management, coalyard rectification, and recovery and utilization, and changing over from "pay after use" to "pay before use," they made a fundamental conversion from "vagueness about coal" to "clarity about coal." In the first half of this year there was a drop in fuel consumption, with a saving of 2,936 tons of raw coal and 456 tons of fuel oil.

Many enterprises are energetically engaged in unearthing potential, and in renovation and reconstruction focused on conservation, are connecting energy conservation with labor competitions and the awards system, and have arranged a clear system of rewards and penalties; these are effective measures that are being adopted by all localities in conserving energy resources. In order to further the development of energy conservation research, some cities and counties,

including Hangzhou and Lanxi, have created technical exchange teams. Ningbo city has ordered that a coal conservation technical exchange day be held every Monday, and Ninghai County holds countrywide coal conservation cooperative activities once a month. At the same time, all the localities have strengthened the training of stokers and are striving to improve their skills. All of the above has had a definite effect in energy conservation.

8480
CSO: 4006

[illegible]

SLURRY PIPELINE TRANSPORT OF COAL PROPOSED

Beijing RENMIN RIBAO in Chinese 20 Sep 80 p 4

[Article by Jin Lushang (6855 1662 1813): "Energy Transport Methods Require Careful Study"]

[Text] Some formulations on the subject of energy resource transport in the 20 May RENMIN RIBAO editorial "Build Up Shanxi Into a Powerful Energy Resource Base As Fast As Possible" merit discussion.

The program envisaged in the editorial is as follows: set up various types of mine-head power stations in Shanxi, then transmit the electricity to north China and central China, and thence to northeast and east China, in order to basically solve these regions' energy shortage problems, decrease outshipment of coal and save transport potential.

Does it make economic sense to carry out long-range electric power transmission from such large mine-head power stations? Can it actually be done? These questions urgently require discussion.

First, energy losses on long-range ultrahigh voltage transmission lines are very large. According to foreign data, when the transmission distance exceeds 200 km, energy losses on ultrahigh voltage transmission lines exceed those in rail and pipeline transport.

Accordingly, in general long-range ultrahigh voltage electric power transmission is very uneconomical as a transport method. Of course, as a method for electric system load distribution and exchange, ultrahigh voltage lines can greatly decrease the system reserve capacity required, and provide great flexibility, so that they are also very beneficial. In a country such as West Germany, with relatively small area (about twice the size of Fujian Province), and in which the coal resources of the Ruhr region are rather rich, and the region itself is a heavy industrial area, so that the coal base and the electricity consumption load center are close together, setting up of mine-head power stations uses the advantages of the arrangement and avoids its shortcomings, so that it is economically beneficial. The United States (with a large area) has a different situation. Most of its large power stations are near the load centers, and the percentage of mine-head stations is very small, less than 5 percent. Our country has an area somewhat

larger than that of the United States, and the coal bases are generally very far away from power consumption centers, so that in economic terms the use of ultrahigh voltage transmission lines to carry electricity 1,000 kilometers or more from Shanxi to central China, east China and the northeast, is extremely unadvantageous (hydroelectric power, which is limited by the location of the resource areas, should be considered separately).

Second, mine-head power stations must consume large quantities of water, and Shanxi and Inner Mongolia are both rather short of water; this is a contradiction that is difficult to overcome. The Ruhr region has the proper water resources, whereas Shanxi and Inner Mongolia do not. U.S. statistical data indicate that mine-head power stations' water consumption is about seven times that for slurry pipeline transport of coal. Because this country uses water for ash removal, and in addition the technical level is low, the actual water consumption level will be more than 10 times that used in slurry pipeline transport. Generally the water consumption per million kilowatts of mine-head power station capacity is 1.6-2.0 cubic meters per second. Taking the Datong and Pingshuo coal fields as an example, if we were to set up a coal base with a yearly production of 50 million tons, it would be possible to set up 13 million kilowatts worth of mine-head power station capacity. But we know that the currently exploited water resources in the area are sufficient for only 2 or 3 million kilowatts worth of mine-head stations. But the area's agricultural and other industries are very short of water, so that whether these water resources should be used entirely for mine-head power plants is another matter. In overall terms, surface and subsurface water are interrelated, and in Shanxi and Inner Mongolia, where the annual evaporation is much greater than precipitation, the prospects for finding a rich subsurface water source are not promising. Accordingly, there is no firm basis for large-scale mine-head power stations.

What then is the answer? I suggest that we investigate and adopt long distance slurry pipeline coal transport.

Long-distance slurry pipeline coal transport is a new transport technology which was developed in the late 1950's in the United States. It immediately showed its advantages, and forced standard railway transport to change over to large 10,000-ton trains in order to compete. The second long-distance coal transport pipeline in the United States (the Black Mesa pipeline) built in 1970, is 440 km long and transports 4.8 million tons of coal annually. To date it has been in trouble-free operation for 10 years and is technically mature and economically very competitive, with a pipeline lifetime estimated at up to 30 years. Slurry pipelines are coming into their own, and the United States already plans to build 7 coal pipelines with a total length of 11,000 km and an annual capacity of 120 million tons. The longest of these is a 2,400 km pipeline with an annual capacity of 40 million tons. The Soviet Union has already constructed a 250 kilometer pipeline and is planning a 4,000 km pipeline with an annual capacity of 35 million tons in order to solve the problem of moving eastern coal westward. In addition, Poland and Italy, Canada and the United States, and northwestern Europe, Australia, Yugoslavia, South Africa and Japan are all planning to use pipeline coal transport.

Why is slurry pipeline coal transport attracting such interest throughout the world? Primarily it is because its economic effects are outstanding. First, the capital construction investment is low. The investment in the Black Mesa slurry pipeline was $35 million U.S., while renovating existing railroads and adding a line to the coal mines would have required an investment of $140 million. Recently a newly-built U.S. pipeline 1,650 km long with an annual coal capacity of 25 million tons had an initial cost 40 percent lower than that of renovating an existing rail line.

Second, the coal transport cost is low. Generally it is a third lower than transport by ordinary train, and the greater the transport distance and quantity, the lower the cost. According to preliminary surveys and calculations by the relevant research and design units in this country, if we compare transporting energy from the Zhungge'er coal field in Inner Mongolia to the Peking-Tianjin-Tangshan region by using a slurry pipeline or renovating a railroad for an annual capacity of 12 million tons, and building a 4 million kilowatt power station in the Peking-Tianjin-Tangshan region, with building mine-head power stations with the same capacity in Zhungge'er and transporting the electricity on a 500,000-volt ultrahigh voltage line, the results make clear that the use of slurry pipeline transport has the cheapest investment cost and the lowest transport cost. This shows that the analyses of the economic benefits from pipeline coal transport are the same in this country and abroad.

Third, the construction cycle is short. It took only 16 months to construct the Black Mesa pipeline. According to estimates by the relevant departments, a pipeline from the Zhungge'er coal field to the Peking-Tianjin-Tangshan region (about 670 kilometers long) could be built and put into operation in 1-2 years.

Fourth, the pipeline is underground, is not affected by weather conditions, does not affect the environment and ecology, and has a pumping station every 100 km, which takes up a very small amount of agricultural land.

Fifth, recovery of the investment is rapid. The investment, tax and interest on the Black Mesa pipeline can be fully recovered in 10 years.

In addition, if coal slurry is exported, the pipeline can be connected up to tankers, and the coal slurry pumped directly into the tanks, greatly simplifying harbor facilities and loading-unloading work.

Of course, pipeline transport also has its limitations: it can only move coal in a single direction and cannot be used for several purposes, is not as flexible as rail transport, and increases the extent of the water removal process. But for coal transport, under conditions which are suitable for pipeline transport, it is much more economical than other transport methods. In addition, since this country has a scarcity of agricultural land, energetic development of slurry pipeline coal transport will be beneficial in decreasing the takeover of agricultural lands. It will lessen the pressure on rail transport, and promote rational distribution of electric power plants (near water supplies and load centers). Since moving a ton of coal by pipeline takes a ton of water, some people wonder how the water resource problem will be solved. According to a recent survey of the Zhungge'er coal field in Inner Mongolia and the Pingshuo coal field in Shanxi, the quantity of water used for pipeline transport would be only a tenth that used for minemouth power stations, so that water sources could be assured.

8480
CSO: 4008

[illegible]

FUEL CONSUMPTION NORMS IN NANJING REVISED

Nanjing XINHUA RIBAO in Chinese 17 May 85 p 1

[Article: "An Effective Measure for Saving Energy"]

[Text] Nanjing's Municipal Economic Committee and Planning Committee and the various leading offices and fuel supply departments organized a force and went into the plants to make investigations. Starting in March, they spent more than 3 months [illegible] revising 1,300 product fuel consumption norms in the industrial enterprises throughout the city. These new norms average about 10 percent less than the old ones. Their implementation in July and August was excellent, and many plants posted actual consumption figures lower than the new norms.

These new norms for more than 1,300 products were revised one by one on the basis of advanced but reasonable principles. The relevant offices and fuel supply departments went personally to check the fuel consumption circumstances described by the plants, to examine the plants' past product fuel consumption records, to make on-the-spot observations of production and management circumstances, and to process suggestions for something further [illegible] fuel conservation potential and the revision of norms. They drew up new advanced norms for products for which fuel levels lower than the original norms had already been achieved; on the basis of satisfying conditions for [illegible] larger potential they [illegible] raised the original norms in the case of products for which the enterprises had already achieved good consumption levels but had no conservation reduction potential at the moment; they drew up relatively advanced and realistically attainable norms for new products which had just gone into production, on the basis of actual figures for a half year or more; and they allowed realistic upward adjustments in the case of a minority of products for which fuel consumption had increased or the original norms for which had become excessively difficult as a result of changes in production processes or starting materials.

Revising product fuel consumption norms is very meticulous work. Because the norm levels and the quality of their implementation directly affect enterprises' economic interests and workers' and staff members' bonus income, the leadership of some enterprises stressed their difficulties during the verification period and left themselves a good deal of leeway. When they encountered such circumstances, the personnel of the leading offices and fuel supply departments persisted in presenting the facts and reasoning things out, and set the norms on the basis of advanced but also reasonable principles. One plant in the chemical

engineering status had already decreased its actual coal consumption per 10,000 yuan of product to 2,754 kg in 1979, and when the norms were being determined the plant leadership requested that the old norm of 2,780 kg be retained, in order to leave themselves some leeway. The comrades from the fuel supply department made an on-the-spot survey and discovered that this plant had major energy consumption leaks. Drawing a lesson from the facts, the plant leadership admitted that the plant's norms could not include so much leeway. Accordingly, both sides agreed to change the 1980 quota to 2,616 kg of coal per 10,000 yuan worth of product, a value lower than the previous year's quota and the previous year's actual achievement.

The revision of fuel consumption norms does not consist merely of the saving of a few tons of coal; more important, the work has strengthened management work and has raised enterprise management standards everywhere. In the past the Qianjiang No 3 Metalworking Tools Plant had insufficient raw data; its product fuel consumption was determined rather roughly and not progressively enough. This time, in order to identify the laws governing coal consumption and the actual situation regarding product fuel consumption, the heads of the planning and supply and marketing departments went into the shops to make a personal survey; they took part in the labor, and for more than 3 months they weighed out the coal before it was used each day and accumulated day-to-day data. After they had earned the right to speak they invited workers and staff to determine norms rationally on the basis of the actual situation. For example, there were six standards for crucibles, but in the past there was only one average consumption norm which was rather loose; now there are six norms which are fairly reasonable but also rather advanced. In the past the Hangzhou Light Bulb plant piled its production coal everywhere, managed it in chaotic fashion, and did not correctly determine unit consumption. In this revision, through the norm reevaluation, they rectified coal-yard management, strictly implemented the production coal receiving and issuance system, specified individual responsibility, weighed and recorded the coal when delivering it to the furnaces, and in addition, starting in August, they began to give conservation awards, further stimulating the masses' enthusiasm for coal conservation, with the result that there was a considerable drop in coal consumption. Last year the plant's fuel consumption norm per 10,000 light bulbs was 2.3 tons, which was then lowered to 1.98 tons; now the actual consumption figure has been decreased to 1.707 tons.

Comrades from the relevant departments state that the current work of reevaluating fuel consumption norms has produced outstanding results, and is being taken seriously by leadership at all levels. But mobilization circumstances are uneven: the leadership in some industrial enterprises has not yet straightened out its thinking, but holds to a "superior" attitude, believing that "our enterprise is a critical one and should get preference in coal supply." Accordingly the work of setting the quotas is still insufficiently grounded in the actual situation, and the quotas for some products are still rather lax, as well as not progressive. This not only wastes energy resources but also does not help the enterprise raise its management standards. To deal with this situation, the relevant enterprise leadership should give it the proper attention, overcome incorrect thinking, strengthen enterprise management, continuously unearth latent potential, and strive energetically to make the fuel consumption norms break enterprise records so as to continue creating optimal standards in their branches of industry.

9186
CSO: 4006

ENERGY

BRIEFS

SHANGHAI'S TALLEST TOWER--This city's tallest steel 220-kV high-voltage transmission line tower was completed yesterday in Minhang on the southern bank of the Huangpu River. The tower is 123 meters tall and weighs 150 tons; it is 60 meters taller than the tower built on 16 June on the northern bank of the Huangpu River. It was tested yesterday by the Municipal Economic Committee, the East China Electric Power Management Office and the East China Electric Power Construction Office. Its construction quality was found to be good and all characteristics achieved the highest level for assembly of steel towers of this type nationwide. To transmit the electricity produced by the Minhang Power Plant on schedule, it was necessary to set up a 220-kV high-voltage transmission line between Minhang and Zhoujiadu. For this purpose a pair of steel towers were set up on the northern and southern banks of the Huangpu River at Minhang, with the Electrical Power Transmission Engineering Office of the East China Electric Power Construction Office taking the responsibility for their construction. They boldly adopted a new construction process and accelerated the speed of work. The time required to construct the 2 towers was reduced by half from the original design, also saving construction materials worth 200,000 yuan. [Text] [Shanghai JIEFANG RIBAO in Chinese 27 Jul 80 p 1] 8480

CSO: 4008

INDUSTRY

NEW MACHINE FILLS GAP IN MARINE CABLE WORK

Jinan DAZHONG RIBAO in Chinese 27 Jul 80 p 1

[Article by Li Baomin [2621 0155 3046] and Huang Jisheng [7806 1015 4141]: "Our Country Successfully Manufactures Its First Large Drum-Type Electric Cable Machine"]

[Text] Following the emergence of our country's first tread-type deep sea cable-laying machine, a certain factory subordinate to the North China Sea Fleet continued to exert itself and successfully manufactured our country's first large drum-type electric cable machine. This was a big step forward in meeting our country's requirements for laying, salvaging, and repairing electric cables at sea and in promoting the extension of our country's submarine cable project into deeper and more remote parts of the ocean. On 4 July, a technical appraisement team constituted from departments in all scientific research institutes, academies, and shipyards concerned gave this technical appraisement: this large drum-type electric cable machine approaches the standard of the most recently built machines of the same type in foreign countries.

"Marine cable innovation experts" and the headquarters of the North China Sea Fleet had sent a letter to prominent deputy heads and heads of departments and to worker comrades in a certain factory, telling them that the successful manufacture in 1976 of our country's first tread-type deep sea cable-laying machine had solved our country's problem of laying submarine cables in the ocean depths. But, the letter continued, this machine was unable to meet the requirements for salvage and repair of the cables. At that time, the leading comrades of the fleet, when receiving these prominent persons and the comrades of an innovation team of a certain factory, urged them to make, as quickly as possible, marine cable equipment that could lay, retrieve, and repair cables. The leading comrades hoped that, on the basis of the tread-type cable-laying machine, they would exert themselves and scale new heights. The prominent persons and the team then worked to make the country strong, exerted themselves, and began to work on manufacturing this type of machine.

At present only a few countries can manufacture a large drum-type electric cable machine of this type. When the factory was manufacturing the machine, owing to a lack of technological data and low equipment capacity, it encountered many difficulties in researching, designing, processing, installing, and ironing out bugs.

The prominent comrades, from beginning to end, gave powerful organizational leadership and technological guidance. Members of the factory's test-manufacture team went to units concerned in various universities and research institutes to solicit

opinions from all departments concerned with this technology and its application, thought of ways to collect technical data, and obtained powerful support and help from units concerned. They also went to sea with marine cable ships to make on-the-spot investigations and get firsthand data. In a period of a little over 3 years, they overcame one by one, the technical and material difficulties they had encountered, and at the beginning of the year successfully manufactured this large electric cable machine from equipment and components produced by our country itself, filling another gap in our country's marine cable project and making a new contribution to the modernization of national defense. This electric cable machine has already been installed on marine cable ships. Many tests at sea have shown that the machine performs satisfactorily and can do marine cable work in deep and remote parts of the ocean.

9727
CSO: 4006

INDUSTRY

MACHINE-BUILDING INDUSTRY IN ZHEJIANG READJUSTED

Hangzhou ZHEJIANG RIBAO in Chinese 18 Jul 80 p 1

[Article: "How Did Our Province's Machine-Building Industry Achieve Steady Sustained Growth?"]

[Text] The machine-building industry throughout the province has adjusted its orientation, displayed its strong points and avoided its weak points, given full play to its distinguishing features, tapped its potential power, and in the first half of the year has enjoyed a steady, sustained growth in production. The total output value, compared to that of the same period last year, rose 11.2 percent, fulfilling 67.76 percent of the annual plan and reaching the highest level in history for a first half-year period.

The readjustment of the national economy brought a problem to the machine-building industry of our province, viz, the production tasks were not critical enough. How could this new contradiction be resolved? The machine-building industry in every place, beginning this year, has displayed its strong points and avoided its weak points, and vigorously increased the output of "fist" products. There are 20 "fist" products, including surface grinding machines, oxygen generators, industrial gas turbines, engines, industrial boilers, West Lake bench drills, water meters, electric meters, chain blocks, and chains. Because they are the major products of the machine-building industry and occupy the decisive position in it, in planning they get priority in arrangements and in the supply of raw materials, fuel, and electric power, and this allows them to be increased in output at high speed. If the production capacity for a specific product is inadequate at a given enterprise, this problem is solved by various places acting in concert. For example, the industrial boiler industry in Wenzhou city had a good market, but the boiler factories did not have time to produce the boilers. The machine-building bureau of the city then organized five mining machinery plants and sheet metal plants to engage in joint production, and thus the production capacity for boilers to meet the market demand was raised 1.5 times, and the difficulty of a batch of enterprises being without production tasks was also resolved.

Another factor in the steady, sustained growth of our province's machine-building industry in the first half of the year was that it fully utilized its superiority in technology and equipment, developed product variety, and devoted great efforts to produce goods for the people's life and for exports. Since the beginning of this year, enterprises in many prefectures and cities have utilized their abundant production capacity and leftover bits and pieces to produce a batch of such products

as window air conditioners, coal gas bottles, plastic soldering machines, medical machines, and textile machinery. The Hangzhou Municipal Machine-Building Bureau is now organizing some enterprises that do not have enough production tasks to give full play to the superiority of their technology and equipment and set up a bicycle production line that will make 100,000 26-inch bicycles a year. The comparatively strong electrical engineering industry is also manufacturing new products for export. For example, after the 5,000-watt oblique-type water turbogenerator had been exhibited in America, the reaction to it was fairly good and American businessmen have already ordered 10 of them on a trial basis; recently, the Philippines wanted to buy hydroelectrical equipment from our country, and most of the equipment was manufactured and supplied by the hydroelectrical equipment industry in our province.

Since the beginning of this year, leading departments and enterprises of the machine-building industry in various places have done further good work in adjusting markets and in taking on more tasks, thereby giving full play to superiority of the machine-building industry. This has also strongly promoted the development of production in the first half of the year. Various places have held exhibitions of machine-building products or opened retail departments in order that production and marketing be in direct contact with each other and that markets for sales be opened. The machine-building industry in the province, by adjusting its tasks to the market for its products, has already overfulfilled the state's assigned plan. In order to do even better in the work of market adjustment, many enterprises have strengthened the work of market management, set up special agencies, and transfered cadres and technical personnel who are well versed in their fields of work, understand production technology, and have the capability of being mobile, thereby replenishing strength. For example, in the Hangzhou Oxygen Generator Plant, 48 persons are engaged in marketing work, and among them are the deputy plant director, the deputy chief engineer, engineers, and technical personnel. They go through many channels, integrate the fields of work, and open up markets.

At present, looking at the production capacity of the machine-building industry in our province, we see that only 60 to 70 percent of it is being utilized. This shows clearly that there is still a large latent potential and that there are very good conditions for the long-term, stable, and sustained growth of the machine-building industry. The machine-building industry in all parts of the province is now conscientiously summing up its experiences, continuing to rely on the broad masses of its staff and workers to overcome difficulties, giving full play to its superiority, displaying its good points and avoiding its weak points, and working hard for even better results in the second half of the year.

9727
CSO: 4006

MACHINE-BUILDING INDUSTRY REFORM CALLED FOR

Beijing RENMIN RIBAO in Chinese 21 Aug 80 p 5

[Article by [character illegible] Qiushi [3061 1395]: "Technical Reform in the Machine-Building Industry"]

[Text] The machine-building industry of our country now has many machine tools and plants, has technically advanced factories, and also has advanced technological equipment. But generally speaking, its technical level is relatively backward and it needs to be reorganized and reformed. This is an important problem facing our country's machine-building industry.

A Change of Strategic Significance

There are two paths for increasing social production: One path is to increase the number of plants and thus expand their scope. This is the path of "quantitative" development. The other path is to carry out technical reform and thereby improve the quality of the enterprise, enabling it to go from the design and manufacture of comparatively primary products to the design and manufacture of comparatively advanced products, to go from a comparatively low level of efficiency and results to a comparatively high level of efficiency and results. This is "qualitative" improvement.

Basically, the machine-building industry we received from the old China was an awful mess that required repairs and replacements. Therefore, in the initial period after Liberation as well as in a subsequent period thereafter, the machine-building industry faced the major task of making something out of nothing and of going from repairing and replacing to manufacturing. Under these conditions, the main thing was to carry out basic construction, increase the number of plants and expand their scope, thereby stressing "quantitative" development. This was correct at the time, and achieved great results.

Now, we want to make the transition from stressing "quantitative" to stressing "qualitative" improvement. Looking at the actual situation in the machine-building industry at present, not only is this possible, it is necessary.

The reason we say that this is possible is because we have been engaged in construction for over 30 years, and the machine-building industry of our country has been developed into an industrial sector that has a fairly complete range of products and possesses a certain scope. We already have the material basis for effecting technical reform, and this is a big difference compared with what we had in the initial period after Liberation.

The reason we say that this is necessary is because the quality of the machine-building industry enterprises is, generally speaking still fairly poor. The realization of the four modernizations demands that the machine-building industry design and manufacture electromechanical products of a high standard, but the majority of products that we are able to design and manufacture are still comparatively backward. Analyzing them technologically and economically, approximately a little over 60 percent are only equal to the world standard of the 1950's. The realization of the four modernizations demands that we greatly improve our economic results, and now there are "many bits but few batches," i.e., the technology and management standards of most enterprises are still fairly backward. Therefore, there is a huge consumption of energy and a low utilization rate of materials, and the growth of the labor productivity rate for 20-odd years has been negligible. In 1970, Japan's machine-building industry created an output value of 5.5 yuan for every 1 yuan of fixed capital, and the corresponding figure for our country was only 1.3 yuan. This shows that our economic results are falling short by a wide margin. The main task facing the machine-building industry is to improve its designing and manufacturing skills and to improve its economic results, and in these respects to catch up with or surpass the world's advanced standards. To fulfill this task it must carry out technical reform and greatly improve the quality of its enterprises.

When discussing why we must stress technical reform, some comrades only see that, during the period of readjustment, investment in the machine-building industry is reduced and, therefore, for enterprises carrying out technical reform, as compared with newly built factories, little money is spent and much work is expected. This is indeed true, but it certainly does not grasp the essence of the problem. The machine-building industry is a complete entity in which quantity and quality form a unity. When developing "quantitatively" to a certain extent, it must put stress on "qualitative" improvement. This is a question of economic law; if we do not do this, then we cannot obtain the best economic results. In the past 20 years, the fixed capital of our country's machine-building industry has increased by 1-fold but its total output value has only increased by 0.9-fold; and the industrially developed countries, in general, have increased the fixed capital of their machine-building industry by 1-fold and increased their total output value by about 1.5-fold. This shows that there is a big difference in economic results between us, who stress "quantitative" development, and others, who stress "qualitative" improvement. From this we see that no matter how much the state invests in the machine-building industry, we much change our stress from "quantitative" development to "qualitative" improvement. This change is not just a measure of expediency during the readjustment period, but is dictated by the overall situation and must be maintained for a long time.

Where Should the Focal Point of the Technical Reform Be Placed?

In order to improve the quality of the existing enterprises and carry out technical reform, the general comprehension of what this entails must be wider than it was in the past. Not only does it entail machining methods in technological refitting, but also testing methods required for perfecting the development of new products, as well as the use of equipment and tools required by modern management techniques. The problems of technical reform to be solved by the enterprises are many and varied. Sometimes, one can kill many birds with one stone; sometimes, one must sacrifice one side in order to insure the success of another side. One must be clear about where the focal point of the technical reform should be placed at a given time, in order that the limited funds be utilized at the key points so as to rapidly attain the desired goal.

In the past, when speaking of technical reform, one often thought only of working with specialized machines and on production lines, focusing intently on increasing output. This was of great efficacy in resolving the contradiction in the supply of machine-building products at the time. But now there has been a big change in the situation, and the focal point of the technical reform in the machine-building industry should be in line with this change. The national economy is now in a stage of readjustment. The proportion of accumulated funds will gradually fall to about 25 percent, and from now on the investment in basic construction for a given year will not grow by much. Therefore, as a rule, the production capacity for machine-building products will be temporarily directed toward meeting market requirements, and this situation will continue for a while. Under these conditions, obviously we cannot, in general, encourage a technical reform centered on increasing output. Starting from the actual situation at present, we think we should place the focal point of the technical reform in the machine-building industry on the following six aspects.

First, carry out the technical reform by reducing consumption centered on saving energy. The short supply of energy has already become a prominent problem for the economies of developed countries. The technical reform of the machine-building industry must make its central task the saving of energy. On one hand, techniques and equipment must be improved so that the consumption of energy during the production process in the machine-building industry is greatly lowered. On the other hand, it is even more important for the machine-building industry to provide each department of the national economy with electromechanical products that have a high energy-utilization rate. The old-type industrial boiler, weighing 1 to 2 tons, that our country produced, when compared with advanced standards, has about a 15 percent lower heating efficiency rate; the motor vehicles produced by our country, when compared with foreign makes of the same model, consume 6 to 30 percent more gasoline; and the efficiency rate of water pumps produced by our country is, in general, 5 to 10 percent lower than that of foreign water pumps. At present, there are many of these "coal tigers," "petroleum tigers," and "electricity tigers" that are in urgent need of replacement or improvement. In addition, we must pay serious attention to finding ways to lower the consumption of energy and materials and to raise the utilization rate of materials.

Second, carry out the technical reform centered on improving product quality and raising technical standards. The main problems now affecting the reputation and sales of some machine-building products is: one, their quality is not good and, two, their standards are not high. In order to solve these two problems, for some of the products the technology must be improved, for some the structure must be improved, and for some new varieties must be developed, replacing and substituting products in a planned way. Therefore, it is necessary to carry out technical reform, employing better, more perfect calculating methods and physiochemical testing methods, in order to meet the requirements of testing and research. In order to gain time, appropriate new technology must be introduced.

Third, carry out technical reform centered on first-class products. Owing to the large-scale development of products, many old enterprises cannot meet the requirements of the new situation. For example, when Harbin's Sanda Powerplant was being built, its generating units were designed to produce 50,000 and 100,000 kilowatts of electricity. It then wanted generating units that could produce 300,000 and 600,000 kilowatts. It could not build a new plant but could only carry out a technical reform of the enterprise so that its product became first class. This kind of technical reform not only relates to technological equipment but also to workshop and hoisting facilities.

Fourth, carry out technical reform centered on improving standards for complete sets of equipment. The machine-building industry must in the future supply various departments of the national economy with complete sets of equipment. There are still some gaps and shortages in the products, as in, for example, some automatic-control instruments and meters. In order to raise the standards of complete sets, there must be a technical reform that will fill the gaps in production capacity.

Fifth, carry out technical reform centered on basic technology and basic parts. Regardless of how the products of an enterprise are improved and developed, some old technology and parts must still continue to be used. To place the focal point of technical reform on basic technology and basic parts will have long-ranging effects on the enterprise itself, and for other plants it will be a case of "one family solves a problem and a hundred families benefit from the solution."

Sixth, carry out technical reform centered on bringing the "three wastes" under control and on protecting the environment. First, reform technology and increase production of equipment necessary to bring under control the "three wastes" and pollution in today's production; second, reform the products so that they conform to the demands of environmental protection; and, third, supply the equipment necessary for industry as a whole to control the "three wastes." All these are production tasks that the machine-building industry must complete.

In a word, there is a lot of work to be done in carrying out technical reform centered on improving the quality of enterprises. The idea that "if there are not enough production tasks, technical reform is unnecessary" is intolerable. Precisely there is where the opportunity for readjustment should be seized and technical reform thoroughly carried out. Naturally, the above-mentioned six aspects apply to the machine-building industry as a whole. When each enterprise is determining the focal point of its own technical reform, it should proceed from the actual situation, make a concrete analysis, and not copy another enterprise mechanically.

Some Principles To Be Followed in Technical Reform

In technical reform, besides selecting well the focal point of the reform, some principles must be followed. If this is not done, the technical reform will not yield good results.

First, advances must be made in technology which rationalizing the economy, making the improvement of economic benefits the starting point and stopping point of the technical reform.

A technical economic analysis must be made for the technical reform plan. For all problems that can be solved by reforming products and reforming technology do not make a big pile of equipment; for all problems that can be solved by using more work places and specialized machinery, do not operate a production line; and for all problems that can be solved by reforming cutting, pressing, and molding tools and by taking measures for installation and fitting, do not perform major surgery in reforming equipment. In short, the industry must obtain for the smallest price possible the greatest economic benefits possible.

In carrying out the technical reform, one cannot just make a general statement that the quantitative increase is so much and the output value increase is so much, and look at the changes shown by each technical economic indicator, such as whether consumption and cost have fallen, whether quality and productivity rate have risen. One must calculate the investment return period and the profit margin on the funds invested, linking investment and benefits together in evaluating economic results.

In some situations, a concrete analysis must be made. For example, by improving product quality and bringing the "three wastes" under control, an enterprise might temporarily not obtain any direct economic benefit but there would be marked social benefits. This must also be taken into account when studying the results of technical reform.

Second, starting with its weak links, the industry must pay attention to improving its overall production capacity.

The goals of technical reform might have nothing at all to do with each other, but for all of them the industry must first find the weak links that are bottlenecks and afterward provide remedies and solutions for them. After the technical reform, the industry must maintain a balance among the working processes, parts, and complete sets of products, and avoid unevenness and gaps. If the reform is carried out without regard to actual requirements, making the capacity of an individual production link or of several production links too large, they cannot be utilized to the fullest, and funds will be overstocked and materials wasted, causing trouble for production management. Only by raising the overall production capacity can there be genuine results from the technical reform.

Third, integrate the technical reform with the reorganization of the machine-building industry.

One way to do this is, when formulating the plan for technical reform, one must take into full consideration the plan for reorganizing the machine-building industry and not carry out the reform without regard to the reorganization, in order to avoid waste caused by having to do poorly done work over again. The second way is to have the technical reform serve and promote reorganization. Priority must be given to good technical reform of special technology plants and special parts plants, fully displaying the superiority of the good product quality, low consumption, and low cost of specialized plants, thereby further promoting and consolidating the results of the reorganization of the machine-building industry and gradually solving the problem of duplication in distribution, construction, and production.

Fourth, have clear and definite aims, link the near with the far, unify plans, divide the work into steps and complete the job.

In carrying out technical reform, we must, first of all, have clear and definite aims--without aims there is no base. When making the aims clear and definite, one cannot rely on thinking only of what is natural, and also one cannot rely on the words of a responsible comrade, but one certainly must make a market forecast and a scientific analysis, so as to insure that the aims suit the actual circumstances. The aims must link the far and the near, avoiding by all means the two erroneous tendencies of being short-sighted or of biting off more than one can chew. By only looking at what is near and ignoring what is far, the first reform will not be

completed and a second reform will be necessary, wasting a lot of money on "building up and then pulling down, pulling down and then building up;" by only looking at what is far and ignoring what is near, there will be a waste caused by idle production capacity and overstocked funds and equipment.

After formulating rational aims, owing to the fact that manpower, material resources, and financial resources are limited, one must follow the principle of "unified planning and division-of-steps realization." Take, for example, an instrument plant that produces optical transits. As the quality of parts was poor and the output of complete sets of machinery was low, the plant could not satisfy consumers' requirements. After making an analysis of the situation, the plant planned and built four production lines and separated the work bottlenecks into four key parts. Because of insufficient investment, it decided to, first of all, concentrate its strength on designing and building a combinational machine for one key part. It also transferred the equipment and personnel thus released to production of the other three key parts. Afterward, it gradually reformed the production conditions for these three key parts, changing the situation from being "outside one's power" to being "within one's power."

9727
CSO: 4006

BRIEFS

MARINE DIESEL LICENSING CONTRACT--The German owned B&W Diesel has just entered into a licensing agreement with China. The statement is being made only a few weeks after the B&W Shipyard could report an enormous order to build four ships. The government authorities in China have approved a licensing agreement between Shanghai Shipyard and B&W diesel A/S. The agreement gives Shanghai Shipyard and the engine factory, Zhen Jiang Marine Diesel the right to produce B&W Diesel's medium-speed engines of the types T20, T/V23, S/U28 and later constructions within the same range of horsepower. Zhen Jiang Marine Diesel is situated in the city Zhen Jiang by the Yangtze River, approximately 300 kilometers from Shanghai. It is at this factory the production of the B&W engines will take place and there is here referred to as a modern factory under construction which, in its expanded form will cover approximately 25,000 square meters of workshop area and have about 700 employees. Within a short period of time, the Chinese authorities have approved still another licensing agreement between a Chinese producer of diesel engines and B&W Diesel A/S. The contract has been entered into with China Corporation of Shipbuilding Industry and includes the licensing rights to the production of B&W Diesel's newest two-stage engine program. The licensing agreement should be seen as a result of B&W's long-standing trade with China which was heavily intensified 2 years ago when collaboration between Shanghai Shipyard and B&W was started. [Text] [Copenhagen BERLINGSKE TIDENDE in Danish 14 Oct 80 p 8] 9667

CSO: 3106

TRANSPORTATION

CHINA LAUNCHES ITS FIRST MAIL SHIP, WILL RUN BETWEEN DALIAN, YANTAI

Beijing GUANGMING RIBAO in Chinese 22 Oct 80 p 1

[Photograph and caption]

China's first mail ship, the "Swan Goose No 1," went into service recently. The mail ship carries 500 tons of mail and is equipped with the latest in navigation aids and has a mail sorting room capable of sorting mail at sea. It will run between Dalian and Yantai but will actually serve all three of the northeastern provinces and eastern Shandong.

CSO: 4006

END

END OF FICHE

DATE FILMED

December 1, 1980

Debbie